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ABSTRACT

The cumulative impact of self contained class placement for 43 gifted students (grades 6 through 8) was assessed and compared to that of 38 gifted students in regular age-grade placement. Ss were compared across multiple goal domains relevant to gifted education (higher order cognitive skills, personal autonomy and responsibility for learning, positive attitude toward school, positive self concept, and extracurricular leadership and participation). Anticipated program effects were not observed, although age and sex differences and program-sex interactions appeared. Results were seen to highlight basic issues and needs concerning gifted program evaluation methodology. (Author)

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Multiple Outcome Assessment of Special Class Placement for Gifted Students: A Comparative Study

1982

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The educational literature is increasingly marked by a value of differentiated educational programs for special interest populations of learners. Consistent with this value is intensified interest in schooling for gifted children and youth (Passow, 1978). Current literature about gifted education, though resplendent with philosophical and theoretical tomes, presents a dearth of evaluation research from organized school programs for the gifted (Gallagher, 1979; Renzulli and Smith, 1978; Tremaine, 1979). In contrast to other major categories of school programs for special populations (e.g., handicapped and disadvantaged students) gifted education apparently has been less subject to the evaluation imperative. Accordingly, the main objective of this study was to assess the cumulative impact of special class placement for gifted children in a public school setting.

Background Perspective

Among the most widely discussed approaches to gifted education are acceleration and enrichment. Acceleration commonly takes the form of moving intellectually gifted or talented students through the regular school program at a faster-than-normal rate. Ostensibly, this enables such students to accomplish higher level academic work and enter advanced

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educational programs earlier than otherwise possible. An enrichment approach concentrates less upon advancing the rate of knowledge acquisition. Rather, its emphasis is to broaden and deepen a learner's school experience within the usual age-graded classroom system. To some extent, special class placement for the gifted represents a compromise of these two basic approaches. Intellectually gifted students are grouped homogeneously into separate classes. This enables opportunities to enrich the regular educational diet and selectively accelerate academic growth in a setting augmented by reciprocal peer stimulation and reinforcement. In theory, then, a competently implemented policy of special class placement for gifted students should promote a broader range of intellectual-academic skill development with concomitant advantages in affective development unhampered by restraints of lock-step classroom activity.

Such theorizing emerged strongly during the 1970's within a self-organized group of parents of gifted children in a large suburban school district in Washington State. In 1977, school officials responded to this special interest group and mounting teaching initiatives by creating a special class placement program for the gifted at the elementary school level.

Program Highlights

Eligibility for special class placement is based primarily upon student IQ status in conjunction with exceptional academic performance. Actual placement of an eligible student, however, is contingent upon parental request for the child to receive special services. Whenever possible eligible students are placed in the nearest of two schools established for special class activities. Regular school bus services are available, but when placement means going beyond a student's normal attendance area, parents are responsible for their child's transportation.

Special class program goals have reflected a broad commitment to provide a challenging educational environment sensitive to the "unique needs" of children with superior intellectual ability. Such an environment is staffed by teachers of recognized competence who show a proclivity for guiding intellectually precocious students. To a greater extent than in regular class placement, emphasis in special classes for the gifted has occurred for the following higher order cognitive outcomes: inquiry strategies and problem finding, problem analysis, problem solving through logic, creativity and divergent thinking. These outcomes are sought through a variety of independent and small group learning projects formulated and sequenced largely by the teacher. Efforts are made to provide supplemental field work outside the classroom for these purposes. Specific attempts to "train" mental abilities via packaged, commercially available programs do not figure into the basic curriculum. Neither are curriculum guidelines influenced explicitly by a theory of intelligence, as a Piagetian framework for formal operational thought. But an array of intellectual games and puzzles is available for elective use.

On balance, then, generic (albeit intense) intellectual stimulation is the method of choice to hone cognitive skills to a greater extent than is thought feasible, if even possible in unselected classes. These cognitive skill emphases, combined with a somewhat tacit theory of affective advantages for special class placement, suggest related outcomes of increased self-direction, responsibility, and satisfaction in learning. Growth in self-esteem is considered as an important byproduct of this responsive curriculum although self-concept "lessons" fall beyond the program's scope.

In addition to higher order cognitive outcomes, the essential curriculum for the gifted in reading, language arts, and mathematics is based on the

the district's preformulated learning objectives with opportunities for some acceleration and considerable enrichment for grade level competencies. In science, social studies, health, and art emphasis is placed upon concept acquisition and information processing skills. In the final analysis, however, specific curriculum decisions are at the discretion of teachers whose expertise, merit ratings, and commmitment to education for the gifted mark their qualifications for special class instruction.

Selection of teachers for work with the gifted is competitive among existing faculty who volunteer for this assignment. Assignment, however, does not necessarily mean a permanent or exclusive tenure in special classes. The impetus for appropriate staff training in ways and means of gifted education comes from two sources: individual initiative for professional growth in their preferred role and appropriate district-sponsored staff development and training programs. The selection and training measures taken together support the school administration claim that the gifted education program is competently staffed.

This special class placement program was in place three years prior to the introduction of any formal evaluation research activity. In the spring of 1980, a decision was made to gather subject data consistent with school district programming for the gifted in special classes. Accordingly, an ex post facto design was applied to three cohorts of special class students to enable student progress achievement consistent with program philosophy and goals. These cohorts were compared with students who were also eligible for, but elected not to participate in, special class placement. Gifted students electing not to participate in special classes follow regular assignments to hetereogeneous classes. Programs for these classes, though similar in pupil-teacher ratios to special classes, are defined by the standard district grade-level curriculum.

According to the rationale for special class placement of gifted students it was expected that certain advantages would accrue in favor of the Experimental group, notably in the areas of cognitive learning, affective development, and leadership skills.

Procedure

Subjects were 81 students from present grades 6, 7, 8 who were eligible for special class placement at the elementary school level in 1977. Of this number, 43 subjects participated in special classes for the gifted (Experimental group) for one, two, or three years, depending upon their grade level at the time this special program was initiated. Control subjects were 38 gifted students who proceeded with regular age-grade placement over a three year period from 1977-1980. Thus it was possible to create two comparable groups--except for sex ratio closely matched by grade level, school achievement status, and measured intelligence--with special class placement as the independent variable. Sex ratios were 21 males and 22 females for the special class placement group, 12 males and 26 females for the regular class placement group.

Inspection of program philosophy, curriculum guidelines and generic goals for gifted education in the district led to the selection of four goal domains for psychological and behavioral measurement. These domains and their respective oeprational measures were as follows: Higher order cognitive skills - Ross Test of High Cognitive Processes (Ross & Ross, 1976); personal autonomy and responsibility for learning - Intellectual Achievement Responsibility Scale (Crandall et al, 1965); positive attitude toward school - Quality of School Life Scale (Epstein & McPartland, 1978); and positive self concept - Self Perception Inventory (after Monge, 1974). A fifth domain, extracurricular leadership and participation was examined for exploratory purposes. This involved the development of a School and Cultural Activities Questionnaire (Evans, 1980) to assess the nature and extent of student extracurricular life.

Though academic achievement and creativity were also strong goal values, district officials chose not to measure these areas. Changes in standardized achievement tests across grade levels during the three year period made the objective assessment of academic progress problematical. Perhaps more significant, however, was staff sentiment, based upon informal progress assessment and existing standardized test data, that academic achievement status was exemplary for this group of gifted students, making further assessment redundant. As for creativity and divergent thinking, assessment was excluded because of low confidence among staff in the technical qualities and usefulness of available measures.

All measures were administered by a trained examiner within a two week time period during late spring, 1980. Examiner and Ss were unaware of the precise nature of the study, although parental and student consent were secured in advance. Data were analyzed by means of ANCOVA, with IQ as the covariate, to determine any main effect of program, sex, and grade on the five dependent measures together with any possible interaction effects. The covariance procedure accomodates any possible differences across groups in psychometric intelligence.[1]

Results

Overview. Contrary to expectation and the recently heralded findings of a similar study of gifted education (Tremaine, 1979), no main effects of special class placement were observed across any of the composite dependent variable measures. Consistent with logical expectations were significant grade effects for higher-order cognitive processing, favoring 7th and 8th grade Ss regardless of class placement. Grade differences favoring older Ss were also observed in extracurricular participation. As a group females reported

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[1]Mean IQ scores (Stanford-Binet) for the Experimental and Control Groups were 140.8 and 138.0, respectively.

stronger intellectual achievement responsibility and self-perceived congeniality than did males. Program x sex interaction analysis revealed that males in special classes held somewhat less positive attitudes toward school and teachers, as well as weaker commitment to classwork. Overall, females (especially 7th grade controls) showed the most positive school orientation.

Tables 1 and 2 present the mean scores for all five dependent measures. It should be noted that all measures are comprised of sub-tests or sub-measures designed to yield somewhat different information about the parent variable. The Ross test, for example, has eight sub-tests which collectively form the total score. Only the latter is reported in Table 1. For all other measures, sub-component means are reported.

--Insert $\begin{pmatrix} \text{Table 1} \\ \text{Table 2} \end{pmatrix}$ here --

Inspection of Table 1 indicates a small number of mean differences across program and sex, with the most obvious difference showing for advancing cognitive performance by grade level. One aspect of activities--number of hobbies pursued--also shows an increase in magnitude with advancing grade level. Certain sex and program differences are also evident, however, the most pronounced occuring for school attitude scores in favor of controls, especially females. Sex differences are also apparent for intellectual achievement responsibility, again in favor of females who seem more certain about their attribution of personal causation for academic performance. These data reinforce the sex difference findings in the original validation study for IAR (Crandall, Katkovsky, and Crandall, 1965). Notably for this entire sample, a successive grade level trend from more to less positive school attitude did not obtain. This is in marked contrast to data from the national norming sample which show a clear age-grade related decrease in positive school sentiment (Epstein and McPartland, 1978).

Table 2 has means for the self-concept and activities measures. The self-concept measure is based upon the semantic differential technique (7 point scale) representing four factors: self-perceived leadership-achievement status, sociability, adjustment, and sex role (masculinity-femininity). The activities questionnaire (self-report) also has four parts: Frequency of school activity (e.g., student government, clubs, music groups, sports); hobbies (e.g., scientific, arts and crafts, collecting, dance, dramatics); general leisure time activity (games, puzzles, TV, radio, social activity); and general educational-cultural activity outside of school (e.g., attending sports events, plays, concerts, lectures).

Table 2 shows few noteworthy mean differences for either of the two measures. The clearest are selected program-sex differences in sociability and sex role perception and a trend of increased amount of active hobbies with age or grade level.

Table 3 summarizes the statistically significant findings from this study. Again, only the total Ross score analysis is reported here. (Separate analyses of the eight sub-tests for the Ross revealed in each case a pattern identical to that for the total score). F-values in Table 3 testify that, excepting two sub-scale scores on the self-concept measure, no significant program effects were documented by these measures. The exception for self-concept is twofold: a slight advantage to controls in congeniality-sociability and a somewhat stronger masculine orientation for experimental Ss. Several sex differences did reach significance as shown by IAR and self concept data. Females surpassed males in IAR and congeniality scores; males surpassed females in masculine orientation. Highly significant grade effects were obtained for cognitive performance and engaged hobbies in favor of older students. Significiantly more positive school attitude was expressed by female controls,

especially the seventh-graders. Otherwise no mean differences were significant.

Discussion

This discussion of results is organized from two related perspectives. First, findings are interpreted in relation to their specific context, i.e., the local school district setting for special class placement of gifted students. Secondly, results from this study are taken to highlight problems and implications about the definition, implementation, and evaluation of gifted education programs in general.

Concerning the first perspective, a foremost issue posed by the present findings is a lack of supportive data for the policy of homogeneous, special class grouping for gifted students. The issue is perhaps most critical in view of the sixth grade students who were completing their third full year of special placement. Any findings of no program differences can, of course, be rationalized by arguing that dependent measures are insensitive or invalid for program outcome assessment. With the exception of the locally-constructed activities questionnaire, however, all measures have amply known credentials (See references in Method section). A question remains that if these measures do not disclose program impacts what measures will? Ultimately at issue here are the program goals and methods, reference to which is forthcoming. But certainly the problem of suitable measurement, a long-standing nemesis in gifted education, is accentuated once again in this specific context.

On the other hand, the findings of no program differences in this particular situation can be interpreted as a strength for the regular class placement of intellectually gifted students, at least in this particular school program's social context. The school district involved in this study serves a higher socioeconomic, educationally-oriented community whose schools are noted for competent instruction and strong pupil achievement patterns.

Special classes for the gifted per se may show more differentiated effects in school ecologies marked by lesser community support and smaller numbers of well-motivated and able students to compose regular classes. In short, the effects of special class placement are probably not uniform across school districts that serve different segments of the population. This probability suggests caution, if not total restraint in generalizing results whatever their direction.

A second issue about the present findings springs from the undetermined possibility of subtle population differences between experimental and control groups. Essential sources of individual differences were well controlled for by sample selection and covariate analysis. One intangible difference might stem from home-parent-child factors associated with the decision to participate or not in the special class program. If anything, this intangible would seem to favor experimental group students who together with parents are observed as eager participants in special classes. This makes the slightly less favorable school attitudes expressed by experimental group males (notably sixth-graders) even more puzzling here. Factors unknown to this study that may take expression in attitudinal responses merit further exploration (e.g., additional parent pressure and peer competition in special classes and possible deliberate attempts by some bright, but misdirected students to "scuttle" a well-intentioned and important evaluation research effort). The facts remain, however, that the attitudinal differences were slight, do not pervade the total experimental group, and are apparently unrelated in any telling way to other outcome measures.

A third, perhaps more teasing aspect of the present findings concerns a tendency for experimental subjects to express a slightly higher traditionally masculine self-perception (e.g., ruggedness, activity, directness, strength). It is

tempting to suggest that a greater emphasis claimed for independent, self-directed learning in special classes is antecedent to this difference. Another possibility is that bolder or more assertive students seek out special class experiences. But a more parsimonious explanation is that this group masculine orientation difference is due to the greater number of males placed in special classes for gifted students.[2] Subsequent study of psychological androgyny among gifted students is perhaps in order.

A fourth and final issue about present findings to be discussed here concerns the comparability of teachers across special classes for gifted students. Experimental subjects participated in either one of two special classes staffed by different teachers throughout the duration of the period under study. Undoubtedly teacher differences existed for these classes just as they do for regular classes. Such differences seem often undisclosed by the general merit ratings approach to staff evaluation typical of public school practice. The question here is extent of teacher competence in implementing program philosophy and method as intended. An attempt to rationalize lack of treatment effect in terms of the personnel variable could take one or the other of two arguments. First, it can be argued that both teachers of the special class gifted were less competent than teachers of regular classes. If true, a program bias in favor of controls could result, assuming that teachers actually make a difference with intellectually advanced students regardless of class placement. A second argument is that one of the two teachers of gifted students was sufficiently less competent than the other, thus effecting lower mean scores for the total experimental group. Given the criteria and care with which special class teachers were selected and

[2]Similarly, the sex ratio imbalance can be taken to account for the higher sociability-congeniality scores in the control group.

supported by district personnel and parents in this case, both arguments are weak. No corroborative evidence for teacher weaknesses could be marshalled from existing school records. Unfortunately, running accounts of teacher behavior from formal observation throughout the three years of program implementation are nonexistent.

The preceding arguments are indirectly relevant, however, in one important respect: a recognition that many programs for the gifted seem largely teacher dependent. An absence of systematic process evaluation data prevents a full examination of this premise about teacher-dependent programs, especially how well an idiosyncratic program actually is implemented. With this in mind, a second and broader perspective emerges for the present discussion: issues and implications for gifted education program evaluation in general.

First, a salient issue for evaluation design in this and most other generic gifted education programs is a diffuseness, if not ambiguity and confusion, regarding program objectives. To be sure, program thrusts usually are clear, the most consensual being the nurturance of higher order cognitive processes and skills. Aside from the fact that such a thrust is educationally important for all normally functioning students, a lack of specificity or precision in formulating program objectives seems typical among gifted education programs (Renzulli, 1980; Smith, 1980). This creates enormous measurement difficulties for summative evaluation.[3]

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[3] Related to this issue, of course, is that once higher order cognitive outcomes are precisely defined, to what extent and how can they be "taught" for transfer value? Moreover, will the methods be consistent with the ideal of personal autonomy held strongly by many teachers of the gifted?

It can be further argued that group-based evaluation designs are inappropriate for gifted education programs given their penchant for individualized program content and objectives. If so, then alternative designs are imperative (e.g. Leinhardt, 1977) precedents for which are rare in actual practice. Even so, use of such alternatives does not eliminate legitimate policy questions about the comparative efficacy and cost-benefit of gifted education strategies such as special class placement (Rossi, Freeman, and Wright, 1979).

A second issue for evaluation design from the broader perspective is process or implementation research. Implementation in this case is concerned with the problem of insuring that the intended treatment has occurred (Leinhardt, 1980). Such insurance is critical for a meaningful test of program impact. That is, any conclusion about program effects will be enlightened by information about how adequately, competently, or completely the intended program was delivered. At least, such information should enable educators to validate stated program thrusts. Additionally, implementation or process evaluation is increasingly valued for its own sake (Zimiles, 1977). For one thing, overall program quality is at issue. For another, implementation study is well suited to questions about what instructional methods and materials are best suited for or preferred by students and their teachers. For still another, explicit process-outcome linkages are perhaps best understood through a careful examination and systematic manipulation of treatment variables (Soar and Soar, 1972).

As informative as implementation study may be, it obviously had no role in the present study despite recommendations to the contrary. Neither has it figured prominently in gifted education program evaluation studies elsewhere. A prominent program evaluation need therefore stands clear. From

the present writers' experience the major challenge for program implementation study is to create cost-efficient, non-threatening process evaluation procedures that are accepted and utilized convincingly in the classroom setting. Positive steps toward this objective have recently been taken (Hall and Loucks, 1977), but do not seem widely known to practitioners.

Finally, evaluation of gifted education programs can be urged to move beyond an exclusive concentration upon positive, intended outcomes to possible positive (and negative) unintended or unanticipated outcomes. Scriven's (1973) "goal-free" evaluation model is suitable for this purpose. In fact, the spirit of evaluation represented by this model is perhaps best expressed in the present study by choices of affective and activity measures. But much more can be recommended for comprehensive evaluation from a goal-free orientation. For one example, impacts on students not eligible for gifted education programs are virtually unknown. Parental response to programs (and their evaluation!) is another example of neglected study the data from which may assist educational decision-making in important ways. (Goodwin and Driscoll, 1980).

To summarize, the present state of evaluation practice applied to gifted education suggests a need for considerable improvement. Not only are evaluation studies rare (Tremaine, 1979), but they are generally limited in scope and design. The present study represents the best effort that could be undertaken given circumstances that seem typical for many school settings: global, diffuse objectives, loosely defined treatment (program content and methods), lack of thoroughgoing formative and summative evaluation planning in advance of program delivery, and ambivalence about how best to measure anticipated or desired outcomes. The present study can thus be taken as an object lesson in evaluation practice. On the plus side, it represents a

manageable and reasonably well-controlled examination of selected differences associated with a gross administrative policy variable: homogeneous special class grouping for gifted students. Further, it represents some degree of commitment to evaluation in general. On the minus side, the study reveals shortcomings in evaluation research that hinder advancement in our understanding of educational processes with special populations of learners. Apart from a moral imperative to provide or not to provide special educational programs for the gifted, any decisions about programming would seem well served by sound empirical data. For the sake of ecological validity, these data should be generated from field, not laboratory study. The time has come for more widespread application of combined process and outcome evaluation methodology to gifted education. Possibly, this methodology could incorporate recent advances in responsive evaluation and naturalistic inquiry (Guba and Lincoln, 1981) to yield beneficial results.

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TABLE 1. Mean Scores From Three Dependent Measures of Gifted Students Enrolled in Special and Regular Classes.

Group	Measure							
	Ross Test of Higher Cognitive Processes	QSL*				IAR**		
		(S)	(C)	(T)	Total	I+	I-	Total
Program								
Special Classes (N=43)	83.1	3.6	8.5	7.5	19.6	12.9	11.9	24.8
Regular Classes (N=38)	83.5	4.2	8.4	7.6	20.2	13.3	10.7	24.0
Sex								
Male (N=33)	82.4	3.6	8.2	7.1	18.9	12.0	10.7	22.7
Female (N=48)	83.9	4.0	8.6	7.9	20.5	13.8	11.8	25.6
Grade								
Sixth (N=33)	79.2	3.8	9.2	7.1	20.0	13.4	10.9	24.3
Seventh (N=20)	83.3	4.1	8.4	8.1	20.6	13.2	11.6	24.8
Eighth (N=28)	88.2	3.8	7.6	7.7	19.2	12.6	11.7	24.3

* QSL, Quality of School Life, is composed of three sub-scales: (S) Satisfaction with School; (C) Commitment to Classwork; and (T) Reactions to Teachers.

** IAR , Intellectual Achievement Responsibility, has two sub-scales: I+ (Expectancy for accepting responsibility for causing good intellectual achievement); and I- (Expectancy for accepting responsibility for causing poor intellectual achievement).

TABLE 2. Mean Scores From Two Additional Dependent Measures of Gifted Students Enrolled in Special and Regular Classes.

	Measure								
	Self Concept*					Activities**			
	I	II	III	IV	Total	S	H	L	E
Program									
Special Classes	5.5	5.6	5.2	4.5	20.8	2.3	5.2	22.1	16.2
Regular Classes	5.7	6.1	5.4	4.2	21.5	2.9	4.6	23.1	16.0
Sex									
Male	5.6	5.6	5.2	4.7	21.1	2.8	4.5	22.3	15.8
Female	5.6	6.0	5.4	4.2	21.1	2.5	5.1	22.3	16.4
Grade									
Sixth	5.7	5.8	5.4	5.4	21.2	3.0	4.1	22.4	15.7
Seventh	5.4	6.0	5.7	5.7	21.6	2.1	4.7	22.3	15.2
Eighth	5.5	5.8	5.0	5.0	20.6	2.4	6.0	22.5	17.1

* Self Concept Factors are : I (Achievement-Leadership); II(Congeniality-Sociability); III (Adjustment); and IV (Sex Role).

** Activities Classifications are: S (School); H (Hobbies); L (Leisure Time); E (Educational-Cultural Events)

TABLE 3. Summary of Significant Findings From Five Dependent Measures of Gifted Students Enrolled in Special and Regular Classes (ANCOVA)

Measure	F-Values for Group and Interaction Effects [1]				
	Program	Sex	Grade	Program x Sex	Program x Grade
Ross Test of Higher Cognitive Processes			8.54		
Quality of School Life					
School Satisfaction					4.85
Classwork Commitment					
Reactions to Teachers					4.86
Total				4.08	4.28
Intellectual Achievement Responsibility					
I+		9.45			
I-					
Total		9.00			
Self Concept					
Achievement-Leadership					
Congeniality-Sociability	7.47	4.21			
Adjustment					
Sex Role	4.91	10.57			
Total					
Activity					
School Activities					
Hobbies			5.12		
Leisure Time					
Educational-Cultural					

[1] Since none of the Sex x Grade or Program x Sex x Grade interactions was significant, these two categories are excluded from the Table. Only F-values that indicate statistical significance are shown.